

ABSTRACT OF THE DISCLOSURE

The present invention provides a purchase planning system for making optimal procurement recommendations for purchasing direct materials. The system provides methods for modeling supply channels and supply contracts, for producing a lowest cost purchase plan, for evaluating the supply agreements and for maintaining contractual compliance with vendors. The process considers contractual details and generates intelligent procurement recommendations to minimize the total procurement cost by taking advantage of discounts, variations in price, freight, tariffs, taxes, duties, etc., by minimizing penalties and by considering substitution of parts with their alternates, while at the same time complying with the corporate business rules such as budgets by item groups, supplier spend limits, minority owned business development, supplier preferences and strategic split percentages, spend minimization/maximization with a specific supplier, etc. The process has extended uses for assessment of proposed contracts by modeling them as virtual contracts, for computation of purchase order contract compliance before an order is released, for better managing cash flow by providing future visibility through the planning horizon. The system uses mixed integer linear programming techniques to formulate and optimize the solution.